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UNITED STATES DISTRICT COURT

NORTHERN DISTRICT OF CALIFORNIA

SAN FRANCISCO DIVISION

SEMICONDUCTOR DESIGN TECHNOLOGIES, LLC,

Plaintiff,

v.

CADENCE DESIGN SYSTEMS, INC.,

Defendant.

Case No. 3:23-cv-01001-AMO

CADENCE DESIGN SYSTEMS, INC.'S REPLY IN SUPPORT OF MOTION TO DISMISS PLAINTIFF'S AMENDED COMPLAINT FOR FAILURE TO STATE A CLAIM PURSUANT TO FED. R. CIV. P. 12(B)(6) AND 35 U.S.C. § 101

Date: January 11, 2024

Time: 2:00 p.m.

Courtroom: 10 – 19th Floor

Judge: Hon. Araceli Martínez-Olguín

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SDT's brief is riddled with mischaracterizations and legal errors. Having misunderstood the law, SDT's arguments fall short and in fact confirm the invalidity of the '636 and '167 patents. For the '636 patent, SDT relies on generic computer limitations that the Supreme Court held unpatentable in *Alice*. For the '167 patent, SDT attempts to distract the Court with pre-existing technology, even though *Alice* focuses on the specific improvement contributed by the patent.

SDT insists the patents somehow contain specific, unconventional solutions but fails to articulate where they appear in the patent claims or how they can be unconventional given the patents' admissions to using prior art approaches. This "amounts to no more than a restatement of the assertion that the desired results are an advance." *Realtime Data LLC v. Array Networks Inc*., No. 2021-2251, 2023 WL 4924814, at *10 (Fed. Cir. Aug. 2, 2023). Even on a motion to dismiss, the Court is not obligated to accept these conclusory statements as true. *Whitaker v. Tesla Motors, Inc.*, 985 F.3d 1173, 1176 (9th Cir. 2021).

SDT attempts to deflect by accusing Cadence of conflating § 101 with §§ 102/103. Not so. *Alice* looks at whether the claims are directed to an abstract idea, which Cadence proved using explanations from the asserted patents about which portions of the claims reflect their alleged inventions and which were admitted to be prior art. This type of analysis—based on the claims and statements in the patents themselves—is precisely what the Federal Circuit and other courts look at when deciding § 101 motions to dismiss. *Secured Mail Sols. LLC v. Universal Wilde, Inc.*, 873 F.3d 905, 912-13 (Fed. Cir. 2017) ("[T]his court has determined claims to be patent-ineligible at the motion to dismiss stage ***based on intrinsic evidence from the specification*** without need for extraneous fact finding outside the record.") (internal quotations omitted).[1]

The Court need only look to the patents themselves to find them invalid because their own words confirm their abstraction. Notwithstanding SDT's baffling assertion that Cadence's arguments are somehow unsupported, Cadence cited admissions from the asserted patents that put them squarely within the types of abstract claims that the Federal Circuit routinely finds unpatentable. *See, e.g.*, *Realtime Data*, 2023 WL 4924814, at *5 (affirming district court decision

[1] All emphasis added unless stated otherwise.

that "rejected [plaintiff's] argument that … there were factual assertions that prevented disposal at the pleading stage" and found "that the 'patents themselves explain that the technologies and methods used in the claimed analyses were well-known and routine.'").

Failing to find intrinsic support in the patents, SDT attempts to save them using extrinsic evidence in the form of an expert declaration. Not only is extrinsic evidence unnecessary (*Secured Mail*, 873 F.3d at 912-14), it is improper in the Ninth Circuit for motions to dismiss. *Infra* §I.A.

SDT hopes to stall a determination by arguing that claim construction is needed. But even if SDT's proposed constructions were adopted for purposes of deciding this motion, the asserted patents would still be invalid under § 101. Therefore, nothing stands in the way for the Court to grant this motion to dismiss based on the statements made in the four corners of the patents and clear precedent from the Supreme Court and Federal Circuit.

I. NO FACTUAL ISSUES PRECLUDE DISMISSAL

A. The Berg Declaration Should Not be Considered

SDT did not dispute that Ninth Circuit law applies. *See* Br. 13. Whether declarations can be considered for Rule 12(b)(6) is a procedural question, not a matter of substantive patent law; therefore, the law of the regional circuit applies because the issue does not pertain to and is not unique to patent law. *Flex-Foot, Inc. v. CRP, Inc.*, 238 F.3d 1362, 1365 (Fed. Cir. 2001). Thus, it is irrelevant whether case law is "often in the securities context" (Opp. 7) because this is a question of procedure, not substantive patent law.

In the Ninth Circuit, expert declarations are not appropriate for Rule 12(b)(6). SDT failed to address controlling Ninth Circuit precedent (*see* Br. 13), including that "[a]ffidavits and declarations … are not allowed as pleading exhibits ***unless they form the basis of the complaint***." *U.S. v. Ritchie*, 342 F.3d 903, 908 (9th Cir. 2003). For example, a warrant affidavit formed the basis of the complaint in *Branch* because false statements in the affidavit were the basis of a *Bivens* 4th Amendment violation claim. *Branch v. Tunnell*, 14 F.3d 449, 450-52 (9th Cir. 1994).

Here, the Berg declaration was not the basis of SDT's complaint—it was not even included with the original complaint. It is a made-for-litigation document, created after the complaint was filed, and does not exist independently of the complaint. In the Amended Complaint, every

reference to the declaration relates to the background of the patents and technology, not to SDT's claims of patent infringement. The '636 and '167 patents form the basis of the Amended Complaint and are allowed as pleading exhibits, but the Berg declaration is not allowed.

Other courts in this district have followed *Ritchie* and granted motions to strike expert declarations from amended complaints because they are procedurally improper. *See, e.g.*, *Fan Yuan v. Facebook, Inc.*, No. 5:15-cv-01725, 2021 WL 4503105, at *2-3 (N.D. Cal. Sep. 30, 2021). SDT did not cite a single Ninth Circuit case where a district court considered an expert declaration for a motion to dismiss. SDT asks this Court to be the first.

Failing to address Ninth Circuit precedent, SDT asks this Court to instead follow two Delaware district court decisions. Opp. 7-8. However, Delaware applies Third Circuit law. Moreover, a Delaware court later rejected an expert declaration because "the court declines to consider matters outside the pleadings on a Rule 12 motion to dismiss[.]" *Aegis 11 S.A. v. TTE Tech.*, CA No. 19-1165-RGA, 2020 WL 4050415 (D. Del. July 20, 2020).

SDT quotes *Branch*'s discussion of whether exhibits are "outside" the complaint but misunderstands the issue. In *Branch*, the plaintiff forgot to ***physically attach*** a copy of a warrant affidavit, even though it contained the false statements that formed the basis of the complaint. *Branch*, 14 F.3d at 453. This raised a question of whether the affidavit was "properly submitted" or "outside" the complaint. *Id. Branch* held that "documents whose contents are alleged in a complaint and whose authenticity no party questions, but which are ***not physically attached*** to the pleading, may be considered[.]" *Id.* at 453-54. That is irrelevant here because SDT attached the Berg declaration to the complaint. But unlike *Branch*, where the affidavit formed the basis of the complaint, the Berg declaration does not and therefore is not allowed as a pleading exhibit.

B. Courts in This District Can Take Judicial Notice of Patent File Histories, but Regardless, the File History Is Not Necessary to Decide This Motion

SDT attempts to turn patent law on its head by asking the Court to consider an extrinsic declaration, in contravention of Ninth Circuit precedent, while excluding the intrinsic record. A file history is a part of a patent's intrinsic record. It is a public record from the Patent Office that courts in this district routinely take judicial notice of when deciding § 101 motions to dismiss. *See,*

e.g., *ScaleMP, Inc. v. TidalScale, Inc.*, No. 18-CV-04716-EDL, 2019 WL 7877939, at *6 (N.D. Cal. Mar. 6, 2019); *Ritchie*, 342 F.3d at 909 ("Courts may take judicial notice of … 'records and reports of administrative bodies.'"). Here, the file history was provided for additional context but is not necessary for deciding this motion because the '636 and '167 patents are abstract based on statements made within the four corners of the patents themselves.

C. SDT's Purported Factual Disputes Misrepresent the Patents and Briefing

SDT argues that Cadence relied on unsupported factual allegations, citing two bullet points regarding the '636 patent's automation of manual steps. Opp. 2:14-19. But these points are admitted by the '636 patent, which states that properties/assertions were manually written, and that it seeks to automate that manual process. '636 pat., 1:46-54, 2:24-3:42, 3:43-54, 5:30-56. Furthermore, these points were admitted by SDT, which repeatedly emphasized the alleged advantages of generating properties/assertions on a computer rather than by hand. Opp. 5-6, 8-9. And SDT's proposed construction seeks to exclude manual generation of properties. Opp. 5.

Next, SDT argues that Cadence relied on unsubstantiated expert opinions, citing two statements from the background section, e.g., that managers and engineers write a design specification using Microsoft Office to create figures or charts. Opp. 2:19-24. However, far from being unsupported, the '636 patent states that graphical editing was known in the art and includes using "business spread sheet" software, e.g., Microsoft Office. '636 pat., 10:39-55, 14:22-26.

II. NO CLAIM CONSTRUCTION ISSUES PRECLUDE DISMISSAL

The Court need not resolve SDT's purported claim construction disputes because they are irrelevant. Even if adopted for the purpose of deciding this motion, the asserted patents would still be unpatentable under § 101. *See RingCentral, Inc. v. Dialpad, Inc.*, 372 F. Supp. 3d 988, 1004 (N.D. Cal. 2019) (adopting patentee's claim construction to find the asserted patents invalid under § 101). SDT did not dispute that claim 8 is representative for the '636 patent and claim 1 is representative for '167 patent. Br. 17, 24.

A. No Construction Necessary for "Property Generating Step" ('636 Patent)

SDT argues that the "property generating step…excludes manually generating properties mentally conceived by a circuit designer to produce assertions." Opp. 5. Construction is not

needed because claim 8 of the '636 patent already recites a "computer readable medium" in the preamble, with steps to be performed by a computer, including the property generating step.

However, whether a computer is required is irrelevant because "computer readable medium claims" are "equivalent to the methods they recite for § 101 purposes." *CLS Bank Int'l v. Alice Corp. Pty. Ltd.*, 717 F.3d 1269, 1288 (Fed. Cir. 2013). And even if a computer is required, "linking the use of the method to a particular technological environment, that is, implementation via computers[,]" is not enough. *Alice Corp. v. CLS Bank Int'l*, 573 U.S. 208, 226 (2014). The claims do not need to cover manually-generated properties to be abstract; they are abstract for claiming computer automation of manual steps. Br. 10-11. The '636 patent admits the "property generating step" was previously done by engineers to manually generate properties that verify a design specification. '636 pat., 1:46-54, 2:24-3:42. Therefore, even if SDT's construction were adopted claim 8 is still directed to an abstract idea.

B. No Construction Necessary for "Latency Analyzer" ('167 Patent)

The goal of claim construction is to remove ambiguity from the claim terms. *See U.S. Surgical Corp. v. Ethicon, Inc.*, 103 F.3d 1554, 1568 (Fed. Cir. 1997). Here, claim construction is not needed because SDT does not argue that "latency analyzer" is ambiguous or its meaning unknown. SDT uses "latency analyzer" throughout its brief and even in its proposed construction. Instead of arguing over its meaning, SDT contends the term excludes latency analysis that "does not provide any insight as to latency associated with a behavioral description." Opp. 6. However, construction is not needed because the claim already states what it requires: "a latency analyzer configured … to calculate a latency in each block representing an operation in a predetermined unit in the behavioral description[.]"

Even if adopted, SDT's construction does not save the claims from abstraction. Cadence already explained that this step is accomplished simply by referring to the correspondence table, which is also abstract. *See* Br. 22-23, 24-25; *infra* § IV.

III. THE '636 PATENT'S CLAIMS ARE INVALID UNDER § 101

SDT argues that the '636 patent is inventive and not abstract because, unlike prior art, it generates properties and assertions automatically, using a computer. SDT's proposed claim

construction excludes manually-generated properties (Opp. 13), and SDT repeatedly emphasizes the "computer readable medium" of the preamble, arguing that it "gives life and meaning to the subsequent claim steps and ***enables assertion verification technology to be carried out by computers, instead of having to resort to an error-prone manual process***." Opp. 13:4-10, 15-16.

However, the Supreme Court invalidated a claim directed to "a computer readable medium" in *Alice*, holding a "generic computer implementation" to be insufficient for § 101. *Alice*, 573 U.S. at 212, 221-22. These types of preambles were popular in the past as an attempt to circumvent § 101, but the Federal Circuit held "computer readable medium claims" to be "equivalent to the methods they recite for § 101 purposes" because "they are merely method claims in the guise of a device and thus do not overcome the Supreme Court's warning to avoid permitting a 'competent draftsman' to endow abstract claims with patent-eligible status." *CLS Bank Int'l*, 717 F.3d at 1287. Even if *Synopsys* declined to address whether a computer-implemented version of those particular claims would have been abstract, the Federal Circuit has repeatedly held that "mere recitation of a generic computer cannot transform a patent-ineligible abstract idea into a patent-eligible invention." *See, e.g.*, *Data Engine Techs. LLC v. Google LLC*, 906 F.3d 999, 1012 (Fed. Cir. 2018). The '636 patent recites steps for generating properties and assertions that were performed manually in the prior art and attempts to circumvent § 101 by reciting a generic "computer readable medium." Under *Alice*, that is insufficient.

A. *Alice* Step 1 – The '636 Patent's Claims Are Abstract

The cases cited by SDT upheld patents by contrasting them with the type of unpatentable computer automation claimed by the '636 patent. In *CardioNet*, the Federal Circuit upheld claims because they did not "***merely computerize pre-existing techniques***" and the patent's "written description does not disclose that doctors performed the same techniques as the claimed device[.]" *CardioNet, LLC v. InfoBionic, Inc.*, 955 F.3d 1358, 1370, 1371-72 (Fed. Cir. 2020). But that is precisely what the '636 patent claims—computerization of pre-existing techniques for manually writing properties and assertions. Unlike *CardioNet,* the '636 patent's written description admits its claimed steps were performed manually in the prior art. E.g., '636 pat., 1:46-54 (admitting that in the background (pre-existing) art, "a property with respect to circuit specifications is converted

into an assertion description" and used for verification), 2:31-52; *infra* § II.B. SDT admits this too and only disputes whether the claimed steps are performed manually or by a computer. Opp. 15-16. Therefore, the '636 patent is precisely the type of unpatentable abstract claim that merely computerizes pre-existing techniques. *See CardioNet*, 955 F.3d at 1370-72.

SDT argues that *McRO* sets forth a "test … for determining if the automation of a human process (creating assertions) is patent-eligible." Opp. 9. But *McRO* establishes no such test. Instead, *McRO* upheld claims by distinguishing them from the mere automation of a human process. While the *McRO* claims performed the same overall task as humans—computer animation—the claims recited "a distinct process" and there was "no evidence that the process previously used by animators is the same as the process required by the claims." *McRO, Inc. v. Bandai Namco Games Am. Inc.*, 837 F.3d 1299, 1314 (Fed. Cir. 2016). The claims did not "simply use a computer as a tool to automate conventional activity" because human animators used "subjective determinations rather than specific, limited mathematical rules" and the background of the *McRO* patent "makes no suggestion that animators were previously employing the type of rules required by claim 1." *Id.* In contrast, the background of the '636 patent admits that the steps in claim 1 were performed manually by engineers. Therefore, the '636 patent simply automates human steps on a generic computer—precisely the type of automation *McRO* distinguished.

Each case cited by SDT emphasized the need for patent ***claims*** to recite specific technological improvements:

- In *CardioNet*, the claims recited use of a non-linear function of a beat-to-beat interval to distinguish atrial fibrillation from other types of arrythmias; the Federal Circuit held that "it is difficult to fathom how doctors mentally or manually" performed that limitation. *CardioNet, LLC v. InfoBionic, Inc.*, 955 F.3d 1358, 1370-71. (Fed. Cir. 2020).

- In *Enfish*, the claims recited self-referential tables that worked differently than the way computers (or humans) used tables in the past. *Enfish LLC v. Microsoft Corp.*, 822 F.3d 1327, 1335-36 (Fed. Cir. 2016).

- In *SRI*, "the claims here are not directed to … automating a conventional idea on a computer" because they "recit[ed] a specific technique for improving computer network security." *SRI Int'l, Inc. v. Cisco Sys., Inc.*, 930 F.3d 1295, 1304 (Fed. Cir. 2019).

- In *McRO*, the claim included technical details for "evaluat[ing] sub-sequences, generat[ing] transition parameters or apply[ing] transition parameters to create a final morph weight set." *McRO*, 837 F.3d at 1314. The technological improvement was "the incorporation of the ***claimed*** rules, not the use of the computer[.]" *Id.*

No such details are found in claim 8 of the '636 patent, which recites a generic computer—a "computer readable medium encoded with a program"—for performing the same steps the patent admits were performed manually in the prior art: generating properties from a circuit specification and then converting those properties to assertions. '636 pat., 1:46-54, 2:31-47. SDT does not identify any specific technological improvement and instead admits the claim is directed to the automation of this idea on a computer system: "[s]pecifically," the alleged improvement in the claims is "a physical system that … generates design data of a circuit specification and generates a property to verify the specification by reading the design data[.]" Opp. 9; *see also id.* at 11 ("[T]he '636 patent provides a new technological framework that enables a computer to generate properties for assertion, then convert them into assertion descriptions.").

SDT argues that "the ability to read properties from a circuit specification … was not known or conventional, especially when it was performed by a computer program stored on a computer-readable medium." Opp. 16. But reciting a computer-readable medium is not enough, and the ***claims*** do not recite any particular technology for reading properties—they simply recite the end result of generating a property from the data of the circuit specification, which SDT and the '636 patent admit was also accomplished manually. '636 pat., 1:46-54, 2:31-36; *see Am. Axle & Mfg., Inc. v. Neapco Holdings LLC*, 967 F.3d 1285, 1302 (Fed. Cir. 2020) ("[T]he claim itself … ***must go beyond stating a functional result***; it must identify 'how' that functional result is achieved by limiting the claim scope to structures specified at some level of concreteness[.]"). Thus, the claims "are recited at a high 'level of result-oriented generality'" and "amount[] to a mere implementation of … abstract idea[s]." *Realtime Data*, 2023 WL 4924814, at *10.

SDT also argues, without explanation, that graphical editing somehow "improves upon the background prior art." Opp. 8. The '636 patent states otherwise: the graphical editor can simply be prior art, such as business spreadsheets software. '636 pat., 7:54-60, 14:23-26. SDT also argues "on-the-fly" improvement (Opp. 8), but this is not in the claims and therefore irrelevant. Moreover, speeding up an already known manual process is still an abstract idea. Br. 17.

B. *Alice* Step 2 – The '636 Patent's Claims Lack an Inventive Concept

Beyond the computer-readable medium of the preamble, the steps of claim 8 match the

conventional steps that the '636 patent and SDT admit were performed by engineers when generating properties and assertions manually: e.g., (1) input a specification, (2) generate a property from the specification, and then (3) convert the property into an assertion. When describing the background art, the '636 patent states that "assertion verification" converted a property of a circuit specification into an assertion. '636 pat., 1:46-54. Therefore, the prior art began by inputting a circuit specification (whose properties were then converted into assertions). The '636 patent admits the prior art included "graphical editors" for inputting a circuit specification. '636 pat., 7:51-60. Next, as SDT admits, the '636 patent describes properties that circuit designers manually "derive[d] from the circuit specification" (Opp. 15; '636 pat., 2:31-36) and assertions that designers manually generated "based on the properties" (Opp. 15-16; '636 pat., 2:37-52). Limitation 8[d] further recites types of properties, and SDT did not dispute the '636 patent admits these were used in the prior art for manual assertions. Br. 6. Therefore, claim 8 takes the conventional steps that were performed by engineers and adds a generic "computer-readable medium encoded with a program" for performing those same steps, in the same order.

SDT argues that the claims include an ordered combination of steps. Opp. 13-14. However, SDT fails to address the admissions of the '636 patent or identify anything about the combination or ordering of steps that would somehow be inventive—the argument is entirely conclusory.

While controlling precedent instructs courts to find an inventive concept in the ***claims***, SDT attempts to find one in the patent specification. SDT argues that "the '636 ***specification*** enables functionality that was not previously available" (Opp. 14), citing *Cellspin Soft, Inc. v. Fitbit, Inc*., 927 F.3d 1306 (Fed. Cir. 2019). SDT, however, mischaracterizes the law. In *Cellspin*, the court explained, "As long as what makes the claims inventive is recited by the ***claims***, the specification need not expressly list all the reasons why this claimed structure is unconventional." *Cellspin*, 927 F.3d. at 1317-18.

SDT criticizes Cadence for analyzing the claims limitation-by-limitation. But SDT misses the point. Proper § 101 analysis focuses on the limitations of the claims (*see id.*), and Cadence explained the story that the '636 patent tells about its own alleged invention, including which

limitations reflect the alleged invention as compared to admittedly pre-existing technologies.[2]

SDT argues that purported benefits in the '636 patent specification are similar to those in *Aatrix Software, Inc. v. Green Shades Software, Inc.*, 882 F.3d 1121 (Fed. Cir. 2018). Opp. 14-15. But SDT's comparison is superficial at best. In *Aatrix*, the claims included data file limitations that allegedly "allowed data to be imported from an end user application without needing to know proprietary database schemas" which led to improvements in the operation of a computer, suggesting "the claimed invention is directed to an improvement in the computer technology itself and not directed to generic components performing conventional activities." *Aatrix* at 1127. In contrast, SDT does not allege improvements to the functioning and operation of a computer, instead arguing that the engineer's overall design process would be improved if human error is removed.

Furthermore, SDT's comparison of benefits skips *Alice* step 2, which searches for an inventive concept ***in the claims***. SDT does not point to anything in the claims that is supposedly inventive, other than the fact that it is performed on a computer. Opp. 15-17. The '636 patent admits that these purported benefits stem from eliminating human error. '636 pat., 3:43-54. Therefore, the problem addressed is a human problem, not a technological problem. This is just the automation of a manual process, with nothing more.

Lastly, SDT raises arguments about converting the circuit specification into properties. However, SDT fails to identify anything in the claim that recites a specific technological improvement or inventive concept. The '636 patent merely attempts to claim the end result of generating properties from the circuit specification, no matter how it is done. This type of results-oriented claiming is often invalidated by § 101 case law because it attempts to preempt all ways of reaching the goal, rather than a specific technical improvement. Br. 14.

IV. THE '167 PATENT'S CLAIMS ARE INVALID UNDER § 101

SDT attempts to adorn the '167 patent with the technological innovations of others. But under *Alice*, the Federal Circuit instructs courts to look through such attempts and focus on what,

[2] SDT raises similar criticism for the '167 patent (Opp. 19) which is improper for the same reason.

specifically, the patent claims improve over existing computer functionality. *See Enfish*, 822 F.3d at 1335-36. The case law analyzes whether that specific improvement is abstract, regardless of whether the underlying prior art is complex or technological, because "limit[ing] the invention to a technological environment … [does] not render an otherwise abstract concept any less abstract." *Intell. Ventures I LLC v. Capital One Fin. Corp.*, 850 F.3d 1332, 1340 (Fed. Cir. 2017). A patent cannot stand on the laurels of other people's work. If a patent claim takes pre-existing technology—such as prior art behavioral synthesis and latency analysis—and adds an abstract idea on top, its specific improvement is still abstract. *See id.*

The '167 patent admits that pre-existing behavioral synthesis tools converted blocks of behavioral code into RTL and saved that correspondence into a table ('167 pat., 1:33-48, 3:19-26), depicted as a three-column table with behavioral blocks on the left and corresponding RTL states on the right. *Id.*, Fig. 3. For example, in Figure 3, behavioral block "file1_102_if" corresponds to RTL states S10-S21 and S12-S30. *See id.*, 4:17-19, 4:47-48, 4:59-61, Fig. 3 (color added).

BLOCK NAME	START STATE	FINISH STATE
file1_102_if	S10	S21
	S12	S30
file1_104_else	S10	S24
	S12	S29

SDT argues that the Court needs a "technical tutorial" to understand how to read a table or conclude that it is a simple mental task. Opp. 3:3-7. But while that generic argument may work for other patents, here the correspondence table of the '167 patent is not technological—it is a simple three-column table, and the Court does not need a technical tutorial to read it.

SDT also argues that claim 1 includes a latency analyzer. But SDT did not dispute that the '167 patent's description of prior art latency analysis matches its description of latency analysis in its embodiments. Br. 8, 25; *compare* '167 pat., 1:56-61 *with* 2:9-12. As the patent admits, prior art "logic simulation … is performed on the RTL description to calculate the latency[.]" '167 pat., 1:53-55. Claim 1 recites this pre-existing approach: "a latency analyzer configured to analyze a result of a logic simulation performed on the RTL description to calculate a latency[.]"

The purported improvement of the '167 patent takes the existing latency results and matches them with the corresponding blocks in the behavioral description. As dependent claim 2 explains, "the latency analyzer ***refers*** to the result of the logic simulation and the correspondence table … to calculate the latency in each block in the behavioral description." *Id.*, 7:8-12, 7:20-25;

Br. 24-25. Therefore, the purported improvement of the '167 patent is a simple, abstract idea: saving and referring to a cross-reference table.

Cadence explained that referring to the table for latency analysis was still abstract: "[d]etermining the portions of behavioral code that corresponded to particular (high latency) portions of the RTL description was a simple matter of referring to the correspondence table—a simple mental task of reading a table[.]" Br. 22. Citing §IV.B.3, Cadence's opening brief explained why ***referring*** to a cross-reference table, by looking at a row and reading its columns, would still be abstract and conventional. It can be performed manually by looking at the pre-existing latency results and referring to a row of the correspondence table to determine the corresponding block of behavioral code. *Id.* Therefore, even if the abstract idea were expanded to include not just saving the correspondence table but also referring to it (for latency analysis), it is still an unpatentable abstract idea because it merely refers to a table in the context of prior art latency analysis. *Id.*

SDT did not dispute that the correspondence table is read in the same manner as tables in books and newspapers: by looking at a row and reading its columns. SDT did not dispute that the latency analyzer of claim 1 determines latency for behavioral blocks simply by referring to the correspondence table. Therefore, even with SDT's latency arguments, the claims are still directed to the abstract idea of saving (and referring to) a cross-reference table.

A. *Alice* Step 1 – The '167 Patent's Claims Are Abstract

The claims of the '167 patent fail to recite a specific *technical* improvement. SDT argues that using a known correspondence table with known latency analysis is a specific improvement. Opp. 4, 20-21. But even if that were true (it is not), it is not a *technical* improvement because saving and referring to a table is abstract—not technological.

In contrast to the simple, three-column table of the '167 patent (*see* Fig. 3), *Enfish* illustrates the types of technological tables that have been held to be patentable. In *Enfish*, the claims were directed to "a specific improvement to the way computers operate" because they recited self-referential tables that worked differently than the way computers (or humans) used tables in the past, including improvements over relational database tables such as inserting "an

object identification number (OID)" and a four-step algorithm to configure such table. *Enfish*, 822 F.3d at 1335-36. Here, the '167 patent does not invent a new kind of table—it uses a conventional, prior art table that is read the same way as tables written on paper.

Instead of a specific technical improvement of the claims, SDT points to the technological capabilities of admitted prior art. SDT argues that the patent uses a table in the context of chip design and latency analysis, which cannot be performed by hand because it requires specialized EDA software. Opp. 20:14-16. However, the patent admits that EDA software—e.g., behavioral synthesizers, logic simulators, and RTL latency analyzers—were all known in the prior art,[3] and they are used by the '167 patent for their conventional, known function. *See* '167 pat., 1:25-62, 3:22. The claims do not improve these tools; they simply add an abstract idea of saving (and referring to) a cross-reference table, something an engineer could do by hand, e.g., by writing down the three-column table of Figure 3 in a lab notebook and referring to it during latency analysis. Even if the patent uses this abstract idea to provide more granular latency calculations, limiting an application to a technical area (e.g., latency analysis or behavioral synthesis) does not make the claim any less abstract. *Capital One*, 850 F.3d at 1340.

Here, the '167 patent does not claim a new way of performing logic simulation to calculate latency for RTL. *Supra* p. 11. At most, the latency analyzer takes admittedly known RTL latency and refers to the correspondence table to look up corresponding behavioral blocks. This merely applies the abstract idea to the technological context of latency analysis and behavioral synthesis.

SDT argues that the '167 patent allows a circuit designer to pinpoint specific behavioral blocks that have high latency. Opp. 19. Not so. The ***prior art*** correspondence table allows designers to pinpoint specific behavioral blocks. '167 pat., 3:29-26. Claim 1 is directed to the abstract idea of saving (and referring to) this pre-existing table. SDT admits the claims are directed to using a correspondence table "in tandem" with latency calculations. Opp. 20:25-26.

The '167 patent also contradicts SDT's arguments about granularity. It states that prior art

[3] Cadence's brief explained, with citations, where the '167 patent admitted the limitations of claim 1 were known in the art. Br. 7, 8-9, 18-19, 23. SDT asserts, without explanation, that the "patent does not state this anywhere." Opp. 18. But SDT's argument is entirely conclusory and does not address the citations in Cadence's brief.

latency analysis was performed for RTL, at a lower (more granular) level as compared with behavioral code, which operated at a higher layer of abstraction. '167 pat., 1:33-35, 1:48-55.

Packet Intelligence highlights the importance of including technological details in the claims. There, the claims were directed to "a challenge unique to computer networks, identifying disjointed connection flows in a network environment." *Packet Intell.LLC v. NetScout Sys.*, 965 F.3d 1299, 1309-10 (Fed. Cir. 2020). The claims "***detail*** how this is achieved in several steps." *Id.* at 1309. In contrast, claim 1 does not provide any details for generating its correspondence table (only the end result of having one), and claim 2 recites the abstract idea of referring to the table during latency analysis.

SDT attempts to distinguish Cadence's cited cases based on the faulty, unexplained notion that the '167 claims are somehow directed to an unconventional "new technological construct" (Opp. 21:3-24) "that cannot be performed by hand." Opp. 20:8-17. Buzzwords aside, SDT does not explain what exactly is unconventional, nor can it when the alleged improvement over the prior art simply saves and refers to a conventional prior art table.

B. *Alice* Step 2 – The '167 Patent's Claims Lack an Inventive Concept

SDT argues that the claims provide an unconventional approach of calculating latency for each block of the behavioral description using a correspondence table. Opp. 22:4-8. This, however, is the abstract idea itself: saving (and referring to) a cross-reference table. It is black letter law that the abstract idea cannot provide the inventive concept. *Am. Axle*, 967 F.3d at 1299. For this reason alone, the '167 patent lacks an inventive concept under controlling precedent.

There is nothing unconventional about the combination or order of claim 1. The '167 patent admits engineers in the prior art wrote a behavioral description, synthesized it to RTL, performed simulation to calculate latency, and checked behavioral code. '167 Patent, 1:36-60. Claim 1 follows this same order, applying an abstract idea to this conventional sequence of design steps by referring to a table to match the latency from RTL to blocks of behavioral code. *See id.*

SDT argues, without explanation, that using a generic "latency analyzer" with a prior art "correspondence table generator" somehow causes them to work unconventionally. Not so. Beyond the abstract idea, the latency analyzer of the '167 patent works the same as the admitted

prior art (*supra* p. 11), to calculate latency for RTL by performing RTL simulation. *Compare* '167 pat., 1:53-55 *with* 7:8-10. SDT did not dispute that claim 1 merely adds a step where the latency analyzer "refers" to the correspondence table to calculate latency for each behavioral block. The correspondence table is also conventional; it is generated using a known algorithm (*id.*, 3:19-23) and referred to in a conventional way: by looking at a row and reading the columns.

SDT contends there is no evidence an engineer would have been able to determine which portions of the behavioral code were associated with high latency[4] and attempts to distinguish *Elec Power* on an erroneous assumption this "was not possible in the prior art[.]" Opp. 24:8-12, 25:7-11. However, the '167 patent admits this was done, albeit ineffectively[5] because it was manually performed. '167 pat., 1:58-60.

SDT cites *Cal. Inst. of Tech.* for the wrong proposition. Opp. 24:14-19. Those claims recited a mathematical formula that provided "an algorithmic solution for a computing problem—the corruption of data during transmission." *Caltech* at 995. "Caltech's error correction codes were not conventional activity that humans engaged in before computers." *Id.* But here, the '167 patent is directed to saving and referring to a table, in the same way tables have been read in books and newspapers before computers. SDT also cites *Amdocs* (Opp. 22), which is inapposite because its claims included "gatherers, network devices, and other components working in an unconventional distributed fashion." *Amdocs* at 1300-1301. Here, the latency analyzer and table generator are not "working together in a distributed manner" as SDT argues. Opp. 22. The claims do not include a network, and the latency analyzer merely refers to the correspondence table.

SDT assumes incorrectly that Cadence only addressed the step of generating the correspondence table. But Cadence explained why referring to the table for latency analysis was still a conventional, abstract idea. Br. 22-23, 24-25. Therefore, the claims of the '167 patent are directed to an abstract idea and lack any inventive concept; they are unpatentable under § 101.

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[4] Elsewhere in its brief, SDT admits the opposite: that a designer could manually determine the blocks with high latency using the prior art method. Opp. 18:27-20:3.

[5] The '167 patent states that "known methods may not check the behavioral description effectively." '167, 1:60-62. SDT misreads this to mean it was not possible. But the previous sentence states that the behavioral description was in fact checked. *Id.*, 1:56-60.

Dated: September 8, 2023

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